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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,332	11/26/2003	John Williams	DPL-043	9485

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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/723,332	WILLIAMS ET AL.
	Examiner	Art Unit
	Gail Verbitsky	2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 8-10, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller et al. (U.S. 6370955) [hereinafter Tuller] in view of Smith.

Tuller discloses in Fig. 1 a device/ TGA chamber, the device in the field of applicant's endeavor comprising a first piezoelectric sensor/ balance/ resonator (first mass sensor) 10 and a reference piezoelectric sensor/ balance/ resonator (reference mass sensor) 11 to determine mass change in a sample/ workpiece 16. The device also comprises a heater 24 evenly heating the resonators and the sample (col. 5, lines 17-19), wherein the heater is in thermal communication with an air gap between the heater and the resonators. This would imply that the air gap serves as a heat spreader, which substantially evenly spreads the heat over the first and reference sensors.

The device determines the mass change of the sample by frequency difference between the resonators 10 and 11 (col. 5, lines 20-21). This would imply that the device has some means in communication with both resonators to determine the mass change caused by the heater. Tuller teaches to cycle the sample through a range of elevated temperatures (vary heating) and monitor the mass change according to temperature

change (col. 5, lines 25-30, col. 6, lines 1-5). This would imply that the heater output varies as desired by an operator, and thus, controlled by a control unit according to an analytical protocol. This would also imply that, the temperature ramp up and rump down with a predetermined time-temperature pattern.

Tuller does not explicitly state that the resonators/ balances are flexural plate wave mass sensors (resonators), as stated in claims 1 and 8, and the remaining limitations of claims 1-4, 8-10, 13-14.

Smith discloses a device in the field of applicant's endeavor wherein; resonators (first mass and reference mass sensor) are flexural plate mass sensors/ resonators.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the resonators, disclosed by Tuller, with the flexural plate mass resonators, as taught by Smith, because both of them are alternate types of the resonators which will perform the same function, of conducting thermogravimetric analysis (determining mass change), if one is replaced with the other. The method steps will be met during the normal operation of the device stated above.

3. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller and Smith as applied to claims 1-4, 8-10, 13-14 above, and further in view of Blaine (U.S. 6336741).

Tuller and Smith disclose the device as stated above in paragraph 2.

They do not explicitly teach the limitations of claims 11-12.

Blaine discloses a device in the field of applicant's endeavor. Blaine determines in Fig. 3 weight/ time response of a sample at the modulated temperature heat/ mass/ time response graph (characterization) of the sample, inherently, based on the determined mass in relation to a predetermined time-temperature corresponding to the heater control (in accordance with some desired protocol).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller and Smith, so as to determine a heat/ mass/ time response of the sample, as taught by Blaine, in order to evaluate the sample's behavior pattern, as well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller and Smith, so as to control the heating of the sample in accordance with a desired protocol and temperature pattern, as taught by Blaine, in order to evaluate the sample's behavior pattern depending on temperature and time, as well known in the art.
The method steps will be met during the normal operation of the device stated above.

4. Claims 5, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller and Smith as applied to claims 1-4, 8-10, 13-14 above, and further in view of Reading (U.S. 5474385) [hereinafter Reading 2].

Tuller and Smith disclose the device as stated above in paragraph 2.

Tuller does not explicitly teach a temperature sensor in thermal communication with a first resonator and a temperature sensor with a reference resonator, as stated in claims 5 and 11-12.

For claim 5: Reading 2 discloses in Fig. 1 a device wherein, a first temperature sensing is sensing temperature of a sample holder and another temperature sensor is sensing temperature of a reference, so as to produce a temperature difference between the sample and reference and regulate a heater.

For claims 11-12: Reading 2 discloses a device in the field of applicant's endeavor. Reading 2 determines a heat/ mass response graph (characterization) of a sample or heat-mass-time response, as shown in Figs. 20-21, based on the determined mass in relation to a predetermined time-temperature corresponding to the heater control (in accordance with some desired protocol). Although, the graph (characterization) in Figs. 20-21, does not explicitly show the mass, it is well known in the art, that the heat capacity is a mass related parameter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller and Smith, so as to determine a heat/ mass/ time response of the sample, as taught by Reading 2, in order to evaluate the sample's behavior pattern, as well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller and Smith, so as to control the heating of the sample in accordance with a desired protocol and temperature pattern, as taught by Reading 2, in order to evaluate the sample's behavior pattern depending on temperature and time, as well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add temperature sensors to the sample and the

reference, as taught by Reading 2, so as to obtain temperature difference between the sample and the reference, and thus, to obtain the correct measurement of the sample property by comparing it with a reference.

The method steps will be met during the normal operation of the device stated above.

5. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller and Smith as applied to claims 1-4, 8-10, 13-14 above, and further in view of Cunningham et al. (U.S. 6837097) [hereinafter Cunningham].

Tuller and Smith disclose the device as stated above in paragraph 2.

They do not explicitly teach the limitations of claims 6-7.

Cunningham states that a flexural plate wave sensor can be a flexural plate sensor array 102. Cunningham also discloses a measuring and reference flexural plate sensors 100 and 200.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the number of flexural wave mass sensors and references, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th. Cir. 1977).

The method steps will be met during the normal operation of the device stated above.

Response to Arguments

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (571) 272-2253 Monday through Friday 8:00 to 4:00 ET.

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800

July 19, 2005